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DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF ENVIRONMENTAL PROTECTION

333 W. Nye Lane, Room 138
Carson City, Nevada 89706

October 28, 2002

Mr. Dave McCarthy
Atlantic Richfield Company
307 E Park Ave.
Anaconda, Montana 59711

SUBJECT: **Draft Waste Rock Areas Work Plan**

Dear Mr. McCarthy:

The Nevada Division of Environmental Protection (NDEP) has received and evaluated the **Draft Waste Rock Areas Work Plan,** dated August 20, 2002, regarding the continued environmental investigation of the Yerington Mine, located in Lyon County near Yerington Nevada. This office provides the following comments from NDEP, EPA, BLM, U.S. Fish and Wildlife and other technical representatives of the Yerington Technical Work Group (YTWG).

NDEP Comments

The proposed sample quantities and locations are inadequate to defensibly characterize the various tailings areas. Sampling should not only characterize these materials for all potential constituents of concern and establish background concentrations of naturally occurring metals in soils, but also vertically delineate the characterized material. The limited sampling proposed will not provide adequate information to allow future decisions regarding vertical migration of fluids. It is inadequate to evaluate potential hazards to human health and the environment, does not establish background concentrations of metals for comparison of analytical results, will not

provide adequate information to avoid conflict and thus is not in the best interest of all parties concerned. Please propose a statistically defensible sampling plan of all tailings areas and background soil locations that will satisfy the requirements listed above.

NDEP Specific Comments

Page 1, Location

There is no mention that Anaconda Leached the W-3 WRA. There is historic documentation that shows the dump was leached in 1965-1968,1972,1974,1975. From the records it appears that it may have been leached continuously for at least 10 years. Parts of the transite pipe return and feed lines are still in place along with some of the leach lines.

Page 3, WRA Geochemistry
In addition to the copper high the mercury content also appears to be on the high side in the three samples noted. Are the mercury levels high enough to warrant mentioning here?

Page 6

2.1 South Waste Rock Area
Construction & Operation

Misquoted (Joe Sawyer)
South WRA was used to store waste rock and alluvium from the Yerington pit only, not various sources.

Various operators in the past have excavated sand and gravel from the South WRA for construction use off site.

Page 8, 2.2 W-3 WRA

Construction and Operation
See page 1 comments above, on Anaconda leaching of W3 WRA left out completely.

Page 9

2.3 S-32 (Sulfide Ore) Waste Rock Area
Construction and Operation
Add this was a low-grade sulfide ore stockpile constructed by Anaconda.

Physical Description
2nd paragraph first sentence typo.

Page 12

Solids Sampling

One-foot sample depth is inadequate. Some of this material could have been in place for 40 years or more. Near surface material may be oxidized/altered.

Appendix A
Poor copies can't read assay sheets

Appendix B
Need Photos of S-32 Dump also more complete photos of W3 and South Dump.

EPA Comments

1) Several critical questions remain unanswered by this workplan. They include:
   a) Presence of perched liquids on the old Anaconda liner.
   b) Do materials vary with depth?
   c) What are the leaching properties of the waste rock materials?
   d) Will precipitation that falls onto the waste rock piles leach through the piles into the groundwater?

2) Page 3, 1st paragraph; The background values cited in this report may represent background soil levels, however, it is premature to cite them definitively as background at this time. EPA has also collected a possible background sample, BK-1, with the results included in EPA's "Anaconda, Yerington Mine Site Emergency Response, Assessment Final Report," dated June 30, 2001. EPA can provide this report if needed. Appropriate background levels should be discussed in our Technical Workgroup meetings.

3) Radionuclide screening and/or analyses should be proposed. At a minimum, all samples should be screened for radionuclides and a percentage of samples should be analyzed in the laboratory.

4) Page 3; It is premature to draw conclusions regarding the homogeneity of materials in all areas and limiting the amount of sampling proposed based on this hypothesis. Sufficient sampling should be proposed to confirm this hypothesis.

5) Page 3, Section 1.3; The previous test results for the waste rock material indicate that leachates will likely contain some copper along with sulfate, and a trace of alkalinity. However, sampling and testing has been very limited and objectives of the proposed sampling should determine whether the past results are representative.

6) Page 4; The discussion regarding exposure scenarios is incomplete. In order to provide a conservative estimate of risk for comparison, the residential exposure pathway is required to be assessed for each area. This also would give an evaluation of the risk any

trespassers would encounter although every effort is underway to ensure that the Site is inaccessible. After the data is collected, it should be compared to screening values, such as EPA Region IX Preliminary Remediation Goals. At this time, the determination can be made as to the necessity of a risk assessment for a given area. There is also no discussion of possible exposure pathways for ecological receptors. Regulatory agency staff have observed wildlife in these areas and potential pathways should be considered in planning the investigation.

7) As mentioned in prior meetings, Atlantic Richfield must make an effort to research the known history of the waste rock areas. At a minimum, Atlantic Richfield should review Anaconda and NDEP records, and attempt to interview past employees to determine their potential knowledge of historical usage.

8) Page 8, Section 2.2,W-3 waste rock area; What is known about the previous leach pad and leaching operations of Anaconda in this area? What chemicals were used for leaching? Any analysis of the leachate? Could any of this leachate still be pooled on the old liner? Are there any analyses of the runoff from this area?

9) Page 9, Section 2.3, S-32 Sulfide Ore; The statements that these are "Sulfide Ore" with "minimal surface oxide staining" and "appear to have been thoroughly oxidized", seem to be contradictory. Are there any analyses of the runoff or surface ponding water?

10) Page 12, Section 3.2, Solids sampling; It appears that only surface samples will be collected (up to one foot depth). This assumes that deeper materials are the same. This should be verified by sampling at depth in at lease one location in each waste rock area. Materials at depth may differ as they were mined at different times, from perhaps different areas of the mine pit, and surface samples may be made oxidized and leached due to exposure over many years.

11) Section 3.2; Waste Rock samples should also be analyzed for leaching properties as leachates and runoff may impact groundwater. The leaching method used should simulate natural leaching conditions.

12) Table 3; Please check your table for proposed metals and methods of analyses. At a minimum, antimony, silver and thallium should also be included.

USDI/FWS Comments

This Plan is deficient in the following areas. Information is needed on the potential uptake of metals and trace elements by vegetation at these sites. Some vegetation may be deeply rooted and may eventually penetrate any cover caps that may be provided on these sites. Vegetation may be consumed by wildlife or cattle, exposing them to the metals and trace elements that are taken up by the plants. Burrowing mammals may experience dermal exposure to the materials

(i.e., waste rock, leach heap, or evaporation pond) if the mammals penetrate any caps on these sites. The risks from these types of exposure should be analyzed.

Information is needed on the standards and toxicity benchmarks that will be used to evaluate any data that will be collected in relation to these three work plans.

The document states that "Stormwater may either pond on the surface of the WRA, or run off to an adjacent slope" for both the W-3 waste rock area (section 2.2) and the S-32 waste rock area (section 2.3). Water that ponds on the surface of the waste rock areas should be collected and analyzed for an array of metals and trace elements to determine if the concentrations of various constituents that are present pose a risk to wildlife, including migratory birds, that could drink these solutions. Information should also be collected on flow paths of water from waste rock areas, to determine if it may impact surface waters such at the Walker River.

Accordingly, please provide the **Draft Final Waste Rock Areas Work Plan** which incorporates the above comments. This information must be received not later November 27, 2002, as per approved submittal schedule.

Should you have any questions or if I can be of any assistance, please do not hesitate to contact me at (775) 687-9376 or FAX (775) 687-6396. All future correspondence regarding this subject should be addressed to the undersigned.

Sincerely,

Arthur G. Gravenstein, P.E.
Staff Engineer
Remediation Branch
Bureau of Corrective Action

ec: Ms. Jennifer Carr, NDEP
Mr. Doug Zimmerman, NDEP

Cc: Mr. Joe Sawyer, Project Manager, SRK Consulting, 102 Birch Drive, Yerington NV. 89403
Mr. Dave McCarthy, Atlantic Richfield Company, 307 E Park Ave., Anaconda, Montana 59711
Mr. Chuck Zimmerman, Senior Associate, Brown and Caldwell, 3488 Goni Road, Suite 142, Carson City, NV 89706

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Mr. Elwood Emm, Chairman, Yerington Paiute Tribe, 607 W. Bridge St., Yerington, NV 89447

Mr. Robert Quintero, Chairman, Walker River Paiute Tribe, P.O. Box 220, Schurz, NV 89427

Mr. Tad Williams, Environmental Director, Walker River Paiute Tribe, P.O. Box 220, Schurz, NV 89427

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